EXHIBIT G

M/S AF
Attorney Docket No. 129250-001017/US

IN THE U.S. PATENT AND TRADEMARK OFFICE

APPLICANT(S):	Feihong CHEN, et al.	CONF. NO.:	4241
APPL. NO.:	10/613,104	ART UNIT:	2616
FILED	July 7, 2003	EXAMINER:	Wanda Z. RUSSELL
ENTITLED:	METHODS AND DEVICES FOR CREATING BI-DIRECTIONAL LSPs		

RESPONSE UNDER 37 C.F.R. § 1.116

December 1, 2007

M/S AF
Commissioner for Patents
Customer Service Window
Randolph Building
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Alexandria, VA 22314

Sir:

In response to the FINAL Office Action dated September 18, 2007, ("Action") for the above-identified patent application, entry and consideration of the amendments to the claims and remarks provided below is respectfully requested. The Applicants respectfully submit that entry of the present amendments would place the claims in better form for appeal and should, therefore, be entered. The sections included in this response are as follows:

AMENDMENTS TO THE CLAIMS

The following is a complete, marked up listing of revised claims with a status identifier in parentheses, underlined text indicating insertions, and strikethrough and/or double-bracketed text indicating deletions.

LISTING OF CLAIMS

1. (CURRENTLY AMENDED) A network device operable to:

by itself generate and send a backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) between the device and the source; and

receive a backward path reservation message from the source in order to establish a backward LSP between the device and the source, wherein the separately established forward and backward LSPs form a bi-directional LSP between the device and the source.

2. (ORIGINAL) The device as in claim 1 further operable to generate and send an initial, forward path reservation message to the source in order to establish the forward LSP after receiving the initial forward path request message.

3. (ORIGINAL) The device as in claim 1 further operable to generate and send a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination.

4. (PREVIOUSLY PRESENTED) The device as in claim 3 further operable to separately generate and send a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately established forward and backward LSPs between the device and the destination form a bi-directional LSP between the device and the destination.

5. (ORIGINAL) The device as in claim 1 wherein the forward and backward LSPs between the device and source comprise the same path.

6. (ORIGINAL) The device as in claim 4 wherein the forward and backward LSPs between the device and destination comprise the same path.

7. (ORIGINAL) The device as in claim 1 further operable to generate the backward path request message based on backward path parameters contained in the initial forward path request message.

8. (CANCELED)

9. (CURRENTLY AMENDED) The device as in claim 7 further operable to query a local database to obtain routing information in order to generate the backward path request message ~~when routing information is not contained within the parameters~~.

10. (ORIGINAL) The device as in claim 7 further operable to generate the backward path request message based on a quality-of-service (QoS) indicator contained within the parameters.

11. (ORIGINAL) The device as in claim 7 further operable to generate the backward path request message based on best effort routing information when a QoS indicator is not contained within the parameters.

12. (CURRENTLY AMENDED) The device as in claim 7 wherein the traffic parameters comprise ~~parameters selected from the group consisting of~~ a bi-directional LSP indicator and a[[,]] QoS indicator ~~and routing information~~.

13. (ORIGINAL) The device as in claim 1 further operable to request backward traffic parameters from the source when the initial path request message does not contain such parameters.

14. (ORIGINAL) The device as in claim 1 further operable to generate and send a first delete path message to the source and to receive a second delete path message from the source in order to delete the bi-directional LSP.

15. (ORIGINAL) The device as in claim 14 further operable to send the first delete path message to the source before receiving the second delete path message from the source.

16. (ORIGINAL) The device as in claim 14 further operable to send the first delete path message to the source after receiving the second delete path message from the source.

17. (CURRENTLY AMENDED) A network device operable to generate independently and send a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination.

18. (PREVIOUSLY PRESENTED) The device as in claim 17 further operable to separately generate and send a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately

established forward and backward LSPs between the device and the destination form a bi-directional LSP between the device and the destination.

19. (CANCELED)

20. (ORIGINAL) The device as in claim 17 further operable to generate and send a first delete path message to the destination and to receive a second delete path message from the destination in order to delete the bi-directional LSP.

21. (ORIGINAL) The device as in claim 20 further operable to send the first delete path message to the destination before receiving the second delete path message from the destination.

22. (ORIGINAL) The device as in claim 20 further operable to send the first delete path message to the destination after receiving the second delete path message from the destination.

23. (CURRENTLY AMENDED) A method for creating a bi-directional LSP comprising the steps of:

generating and sending [[a]] an independent backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) between the device and the source; and

receiving a backward path reservation message from the source in order to establish a backward LSP between the device and the source, wherein the separately established forward and backward LSPs form a bi-directional LSP between the device and the source.

24. (ORIGINAL) The method as in claim 23 further comprising the steps of generating and sending an initial, forward path reservation message to the source in order to establish the forward LSP after receiving the initial forward path request message.

25. (CURRENTLY AMENDED) The method as in claim 23 further comprising the steps of generating and sending [[a]] an independent backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination.

26. (PREVIOUSLY PRESENTED) The method as in claim 25 further comprising the steps of separately generating and sending a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately established forward and backward LSPs between the

device and the destination form a bi-directional LSP between the device and the destination.

27-28 (CANCELED)

29. (ORIGINAL) The method as in claim 23 further comprising the step of generating the backward path request message based on backward path parameters contained in the initial forward path request message.

30. (CANCELED)

31. (CURRENTLY AMENDED) The method as in claim 29 further comprising the step of querying a local database to obtain routing information in order to generate the backward path request ~~message when routing information is not contained within the parameters~~.

32. (ORIGINAL) The method as in claim 29 further comprising the step of generating the backward path request message based on a quality-of-service (QoS) indicator contained within the parameters.

33. (ORIGINAL) The method as in claim 29 further comprising the step of generating the backward path request message based on best effort routing information when a QoS indicator is not contained within the parameters.

34. (CURRENTLY AMENDED) The method as in claim 29 wherein the traffic parameters comprise parameters selected from the group consisting of a bi-directional LSP indicator and a[[,]] QoS indicator ~~and routing information~~.

35. (CURRENTLY AMENDED) The method as in claim 23 further comprising the step of requesting backward traffic parameters from the ~~source when the initial path request message does not contain such parameters~~.

36. (ORIGINAL) The method as in claim 23 further comprising the steps of generating and sending a first delete path message to the source and receiving a second delete path message from the source in order to delete the bi-directional LSP.

37. (ORIGINAL) The method as in claim 36 further comprising the step of sending the first delete path message to the source before receiving the second delete path message from the source.

38. (ORIGINAL) The method as in claim 36 further comprising the step of sending the first delete path message to the source after receiving the second delete path message from the source.

39. (ORIGINAL) A method for creating a bi-directional LSP comprising the steps of generating and sending a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination.

40. (PREVIOUSLY PRESENTED) The method as in claim 39 further comprising the steps of separately generating and sending a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately established forward and backward LSPs between the device and the destination form a bi-directional LSP between the device and the destination.

41. (ORIGINAL) The method as in claim 40 wherein the forward and backward LSPs between the device and destination comprise the same path.

42. (ORIGINAL) The method as in claim 39 further comprises the steps of generating and sending a first delete path message to the destination and to receive a second delete path message from the destination in order to delete the bi-directional LSP.

43. (ORIGINAL) The method as in claim 42 further comprising the step of sending the first delete path message to the destination before receiving the second delete path message from the destination.

44. (ORIGINAL) The method as in claim 42 further comprising the step of sending the first delete path message to the destination after receiving the second delete path message from the destination.

45. (PREVIOUSLY PRESENTED) A network device comprising:

means for generating and sending a backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) between the device and the source; and

means for receiving a backward path reservation message from the source in order to establish a backward LSP between the device and the source, wherein the separately established forward and backward LSPs form a bi-directional LSP between the device and the source.

46. (ORIGINAL) The device as in claim 45 further comprising means for generating and sending an initial, forward path reservation message to the source in order to establish the forward LSP after receiving the initial forward path request message.

47. (ORIGINAL) The device as in claim 45 further comprising means for generating and sending a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination.

48. (PREVIOUSLY PRESENTED) The device as in claim 47 further comprising means for separately generating and sending a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately established forward and backward LSPs between the device and the destination form a bi-directional LSP between the device and the destination.

49-50. (CANCELED)

51. (ORIGINAL) The device as in claim 45 further comprising means for generating the backward path request message based on backward path parameters contained in the initial forward path request message.

52. (CANCELED)

53. (CURRENTLY AMENDED) The device as in claim 51 further comprising means for querying a local database to obtain routing information in order to generate the backward path request ~~message when routing information is not contained within the parameters~~.

54. (ORIGINAL) The device as in claim 51 further comprising means for generating the backward path request message based on a quality-of-service (QoS) indicator contained within the parameters.

55. (ORIGINAL) A network device comprising means for generating and sending a backward path reservation message to a destination after receiving a backward path request message from the destination in order to establish a backward LSP between the device and the destination.

56. (PREVIOUSLY PRESENTED) The device as in claim 55 further comprising means for separately generating and sending a forward path request message to the destination in order to establish a forward LSP between the device and the destination, wherein the separately established forward and backward LSPs between the device and the destination form a bi-directional LSP between the device and the destination.

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REMARKS

Favorable reconsideration of this application in light of the preceding amendments and the following discussion is respectfully requested.

Claims 8, 19, 27, 28, 30, 49, 50 and 52 having been canceled by this response, the Applicants respectfully submit that claims 1-7, 9-18, 20-26, 29, 31-48, 51 and 53-56 remain pending and properly under consideration in this application. The Applicants submit that the above Listing of Claims shows the amended claims in marked-up form in accordance with 37 C.F.R. § 1.121.

Rejections under 35 U.S.C. § 102

Claims 1-56 stand rejected under 35 U.S.C. 102(e) as anticipated by John Ling Wing So's U.S. Pub. Pat. Appl. No. US 2002/0109879 ("So"). The Applicants traverse this rejection.

With respect to claim 1, the Examiner cites portions of So's paragraphs [0194], [0365], [0488] and [0572] as teaching each of the claimed elements arranged and functioning in the order recited in the claim. The Applicants note that with regard to the procedure for establishing a "reverse" path, the cited portion of So teaches that the initial request provides the reverse path routing information. Specifically, So teaches:

> [0194] The construction of a bi-directional lightpath differs from the construction of a uni-directional lightpath above only in that upon receiving the setup request, the last-hop router ***returns the setup message using the reverse of the explicit route of the forward path***. ***Both directions of a bi-directional lightpath share the same characteristics***, *e.g.*, set of nodes, bandwidth and restoration requirements. For more general bi-directional connectivity, a user simply requests multiple individual lightpaths.

So, para. [0194] (emphasis added). The Applicants contend that So, therefore, teaches the use of a single lightpath for both forward and backward communication in which the "last-hop router" simply reverses the forward routing path. The Applicants contend that So does not teach or suggest that the "last-hop" router is capable of independently ("by itself") generating a backward path – indeed, as taught by So, the characteristics of the "backward" path are defined solely by the "setup request" received by the router without any modification or independent action by the receiving unit.

The Applicants note that, as amended, claim 1 requires that the network device be operable in a manner that whereby the device can:

> . . . independently generate and send a backward path request message to a source of a separately generated, initial forward path request message associated with a forward Label Switched Path (LSP) between the device and the source . . . .

The Applicants further contend that the cited portions of So cannot fairly be characterized as providing for the "independent" generation of the "backward path" as recited in the pending claims. Indeed, with respect to backward path generation, So's "last-hop" router may be more fairly characterized as a "slave" unit that merely utilizes the routing

information from the setup request and does not provide for any alternative routing path or routing path source(s).

The Applicants contend that the claim amendments reflected above are intended to exclude from the claimed subject matter embodiments in which the setup request provides specific routing information for the backward path. The Applicants contend, therefore, that the So reference does not teach each element of the pending claims as required for a rejection under 35 U.S.C. § 102. Furthermore, the Applicants contend that one of ordinary skill in the art relying on the So reference would not be led to the functional modifications necessary to achieve the claimed inventions.

With respect to claim 2, the Examiner suggest that paragraphs [0374], specifically lines 4-6, and [0482], specifically lines 1-3, teach the additional elements recited in claim 2. The Applicants note that these paragraphs provide in their entirety:

> [0374] At a conceptual level, explicit LSPs and optical channel trails exhibit certain commonalities. Essentially, they are both fundamentally unidirectional, point-to-point virtual path connection abstractions. ***An explicit LSP provides a parameterized packet forwarding path (traffic-trunk) between an ingress LSR and an egress LSR.*** Correspondingly, an optical channel trail provides a (possibly parameterized) optical channel between two endpoints for the transport of client digital signals. The payload carried by both LSPs and optical trails are transparent to intermediate nodes along their respective paths. Both LSPs and optical trails can be parameterized to stipulate their performance, behavioral, and survivability requirements from the network.

and

> [0482] ***Using the concept of nested LSPs (with a label stack) allows the system to scale by building a forwarding hierarchy.*** At the top of this hierarchy are FSC interfaces, followed by LSC interfaces, followed by TDM interfaces, followed by PSC interfaces. This way, an LSP that starts and ends on a PSC interface can be nested (together with other LSPs) into an LSP that starts and ends on a TDM interface. This LSP, in turn, can be nested (together with other LSPs) into an LSP that starts and ends on a LSC interface, which in turn can be nested (together with other LSPs) into an LSP that starts and ends on a FSC interface.

Action at 3 (emphasis added). The Applicants submit that the cited portions of the So reference cannot fairly be characterized as teaching a device capable of generating and sending an "initial, forward path reservation message to the source in order to establish the forward LSP after receiving the initial forward path request message." The Applicants suggest that the cited portions of the so reference do not provide any basis for determining where, within the system, the "initial forward path reservation message" is generated. Indeed, as detailed above, the Applicants contend that, as taught by So, it is the initial request from the "source" that provides the information for the forward path rather than path information generated in the receiving or "last-hop router."

The Applicants further contend that the Examiner's conclusory statement with regard to the "teaching" provided by the cited portions of the So reference are not sufficient to properly communicate the basis for the alleged teaching so that the Applicants are afforded a full and fair opportunity to understand and address the Examiner's technical reasoning in there response. The Applicants request, therefore, that the next communication from the Office provide a substantive explanation as to how the cited portions of the reference are being interpreted to support the present rejection.

With regard to claims 3 and 4, the Applicants incorporate the discussion above regarding the teachings of the So reference. The Applicants contend that the discussion provided, Action at 3, muddles the source/device/destination distinction among the system components. The Applicants request, therefore, that the next communication from the Office provide a substantive explanation as to how the cited portions of the reference are being interpreted to support the present rejection. In particular, the Applicants again contend that while the cited portions of the So reference provide, in part:

> [0488] ***While traditional traffic engineered MPLS (and even LDP) are unidirectional, generalized MPLS supports the establishment of bi-directional LSPs, see Section 4. The need for bi-directional LSPs come from non-PSC applications.*** There are multiple reasons why such LSPs are needed, particularly possible resource contention when allocating reciprocal LSPs via separate signaling sessions, and simplifying failure restoration procedures in the non-PSC case. Bi-directional LSPs also have the benefit of lower setup latency and lower number of messages required during setup. Other features supported by generalized MPLS are rapid failure notification, see Section 5, and termination of an LSP on a specific egress node, see Section 6.

So, para. [0488] (emphasis added). The Applicants contend that there is no indication or suggestion as to which components of the system are generating and receiving the various routing-related messages or the content of those messages. The Applicants contend that absent such specificity, speculation as to the content of those messages is not sufficient to support the present rejection.

With regard to claims 5 and 6, the Applicants contend that focusing on the correspondence of the forward and backward paths fails to address the banner in which those paths are generated. The Applicants contend, therefore, that the discussion above with regard to the manner in which the So reference generates the respective paths is equally applicable to claims 5 and 6.

With regard to claim 7, the Applicants incorporate the discussion above with regard to the generation and content of the various messages transmitted among the system components for the purposes of establishing forward and backward LSPs. Again, the Applicants contend that, as taught by So, the backward path routing is provided in the forward path request and is not, therefore, independently generated by the device.

With regard to claim 8, the Applicants contend that this rejection is rendered moot by the cancellation of this claim as reflected in the Listing of Claims provided above.

With regard to claims 9-22, the Applicants contend that these claims' dependence from claim 1 is sufficient to distinguish them from the teachings of So.

With regard to claims 23-44, to the extent not rendered moot by claim cancellation, the Applicants incorporate the discussion above with respect to the applicability of So to claims 1-22 and contend that the method claims are allowable for at least the same reasons. In particular, the Applicants contend that the cited portions of the So reference do not clearly support the associated contention(s) with regard to the

teachings as understood by one of ordinary skill in the art. The Applicants maintain, therefore, that until some substantive explanation is provided as to exactly how the cited text supports the pending rejection, the Applicants have not been afforded a full and fair opportunity to understand and address the Examiner's technical interpretation and reasoning.

With regard to claims 45-56, to the extent not rendered moot by claim cancellation, the Applicants incorporate the discussion above with respect to the applicability of So to claims 1-22 and contend that the means claims are allowable for at least the same reasons. In particular, the Applicants contend that the cited portions of the So reference do not clearly support the associated contention(s) with regard to the teachings as understood by one of ordinary skill in the art. The Applicants maintain, therefore, that until some substantive explanation is provided as to exactly how the cited text supports the pending rejection, the Applicants have not been afforded a full and fair opportunity to understand and address the Examiner's technical interpretation and reasoning.

The Applicants request that the pending rejections be reconsidered and withdrawn accordingly.

CONCLUSION

In view of the above remarks and amendments, the Applicants respectfully submit that each of the pending objections and rejections have been addressed and overcome, leaving the present application in condition for allowance. A Notice to that effect is respectfully requested.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge any underpayment or non-payment of any fees required under 37 C.F.R. §§ 1.16 or 1.17, or credit any overpayment of such fees, to Deposit Account No. 503777, including, in particular, extension of time fees.

Respectfully submitted,

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